

Evaluating Sidewall Coverage
In A Semiconductor Wafer

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5 ABSTRACT

10 A sidewall or other feature in a semiconductor wafer is evaluated by illuminating the
wafer with at least one beam of electromagnetic radiation, and measuring intensity of a
portion of the beam reflected by the wafer. Change in reflectance between measurements
provides a measure of a property of the feature. The change may be either a decrease in
reflectance or an increase in reflectance, depending on the embodiment. A single beam may
be used if it is polarized in a direction substantially perpendicular to a longitudinal direction
of the sidewall. A portion of the energy of the beam is absorbed by the sidewall, thereby to
cause a decrease in reflectance when compared to reflectance by a flat region. Alternatively,
two beams may be used, of which a first beam applies heat to the feature itself or to a region
15 adjacent to the feature, and a second beam is used to measure an increase in reflectance
caused by an elevation in temperature due to heat transfer through the feature. The elevation
in temperature that is measured can be either of the feature itself, or of a region adjacent to the
feature.